

الف) $y = \frac{x+c}{x^2+cx-1}$ $\Rightarrow x^2+cx-1 \div x-1 = x^2+cx-1$
 $\Rightarrow x^2+cx-1=0 \Rightarrow (x-1)(x+1)=0 \Rightarrow \begin{cases} x=1 \\ x=-1 \end{cases} \Rightarrow D_f = \mathbb{R} - \{1, -1\}$
 ب) $y = \frac{x+c}{x^2+9x+10}$ $\Rightarrow x^2+9x+10 \div x+1 = x^2+8x+10$
 $\Rightarrow x^2+8x+10=0 \Rightarrow (x+1)(x+7)=0 \Rightarrow \begin{cases} x=-1 \\ x=-7 \end{cases} \Rightarrow D_f = \mathbb{R} - \{-1, -7\}$

الف) $y = \frac{x+c}{x^2-x+1}$ $\Rightarrow x^2-x+1 \div x-1 = x^2-x+1$
 $\Rightarrow x^2-x+1=0 \Rightarrow (x-1)(x+1)=0 \Rightarrow \begin{cases} x=1 \\ x=-1 \end{cases} \Rightarrow D_f = \mathbb{R} - \{1, -1\}$
 ب) $y = \frac{x+c}{x^2+9x+10}$ $\Rightarrow x^2+9x+10 \div x+1 = x^2+8x+10$
 $\Rightarrow x^2+8x+10=0 \Rightarrow (x+1)(x+7)=0 \Rightarrow \begin{cases} x=-1 \\ x=-7 \end{cases} \Rightarrow D_f = \mathbb{R} - \{-1, -7\}$

الف) $y = \frac{x}{x^2-vx+10}$ $\Rightarrow x^2-vx+10 \neq 0 \Rightarrow (x-5)(x-2) \neq 0 \Rightarrow \begin{cases} x \neq 5 \\ x \neq 2 \end{cases}$
 ب) $y = \frac{x}{x^2+cx}$ $\Rightarrow x^2+cx \neq 0 \Rightarrow x(x+c) \neq 0 \Rightarrow \begin{cases} x \neq 0 \\ x \neq -c \end{cases}$
 $\Rightarrow D_f = \mathbb{R} - \{0, -c\}$

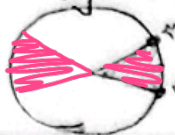
الف) $y = \sqrt{[x]-x}$ $\Rightarrow [x]-x \geq 0 \Rightarrow [x] \geq x \Rightarrow D_f = (-\infty, -1]$

ب) $y = \frac{[x]^2+4}{[x]^2-x-1}$ $\Rightarrow [x]^2-x-1 \neq 0 \Rightarrow ([x]-1)([x]+1) \neq 0 \Rightarrow \begin{cases} [x] \neq 1 \\ [x] \neq -1 \end{cases}$
 $\Rightarrow D_f = \mathbb{R} - \{[x] \in \mathbb{Z} \mid [x] = 1, -1\}$

الف) $y = \sqrt{[x-\frac{1}{2}]+[x+\frac{1}{2}]}$ $\Rightarrow [x-\frac{1}{2}]+[x+\frac{1}{2}] \geq 0 \Rightarrow [x+\frac{1}{2}] \geq \frac{1}{2} \Rightarrow x \geq \frac{1}{2} \Rightarrow D_f = [\frac{1}{2}, +\infty)$
 ب) $y = \sqrt{[x-\frac{1}{2}]+[\frac{1}{x}-x]}$ $\Rightarrow [x-\frac{1}{2}]+[\frac{1}{x}-x] \geq 0 \Rightarrow [x-\frac{1}{2}] \geq x-\frac{1}{x} \Rightarrow x \leq \frac{1}{2} \Rightarrow D_f = \{x \mid x = 1 + \frac{1}{k}, k \in \mathbb{Z}\}$

الف) $y = \frac{\cos x + 1}{\cos x - 1}$ $\cos x + 1 \neq 0 \Rightarrow \cos x \neq -1 \Rightarrow D_f = \mathbb{R} - \left\{ \frac{\pi}{2} \right\}$ ✓

ب) $y = \sqrt{1 - \varepsilon \sin^2 x}$



$1 - \varepsilon \sin^2 x \geq 0 \Rightarrow \sin^2 x \leq \frac{1}{\varepsilon} \Rightarrow \sin x \geq \frac{1}{\sqrt{\varepsilon}}, \sin x \leq \frac{1}{\sqrt{\varepsilon}}$

فقط در این نواحی $-\frac{1}{\sqrt{\varepsilon}} \leq \sin x \leq \frac{1}{\sqrt{\varepsilon}}$ است

$\Rightarrow D_f = \mathbb{R} - \left(\frac{\pi}{2} - \frac{\pi}{\sqrt{\varepsilon}}, \frac{\pi}{2} + \frac{\pi}{\sqrt{\varepsilon}} \right)$

$D_f = \left[\frac{\pi}{2} - \frac{\pi}{\sqrt{\varepsilon}}, \frac{\pi}{2} + \frac{\pi}{\sqrt{\varepsilon}} \right]$

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الف) $y = \sqrt{x \sin x - 1}$

$x \sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{x}$

$\Rightarrow D_f = \left[\frac{\pi}{2} + \frac{\pi}{x}, \frac{\pi}{2} + \frac{\pi}{x} \right]$

موضوع $\frac{\pi}{x}$ است



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ب) $y = \sqrt{1 - x \cos x}$

$1 - x \cos x \geq 0 \Rightarrow \cos x \leq \frac{1}{x}$

$\Rightarrow D_f = \left[\frac{\pi}{2} + \frac{\pi}{x}, \frac{\pi}{2} + \frac{\pi}{x} \right]$

پایین صنف $\downarrow$ اصل



الف) $y = \arcsin(x^2 + \varepsilon x + 1)$ $-1 \leq x^2 + \varepsilon x + 1 \leq 1$

$\Rightarrow -x \leq x^2 + \varepsilon x \leq 0 \Rightarrow x^2 + \varepsilon x \leq 0 \Rightarrow \frac{-\varepsilon \pm \sqrt{\varepsilon^2 - 4}}{2} \leq x \leq 0$ $[-\varepsilon, 0]$

$x^2 + \varepsilon x \geq -1 \Rightarrow x^2 + \varepsilon x + 1 \geq 0 \Rightarrow \frac{-\varepsilon - 1 \pm \sqrt{\varepsilon^2 + 4\varepsilon + 5}}{2} \leq x \leq \frac{-\varepsilon - 1 + \sqrt{\varepsilon^2 + 4\varepsilon + 5}}{2}$ $[-\varepsilon - 1, -\varepsilon]$

ب) $y = \sqrt{\omega - x^2}$

$\omega - x^2 \geq 0 \Rightarrow x^2 \leq \omega \Rightarrow x \leq \sqrt{\omega}, x \geq -\sqrt{\omega}$

$-1 \leq \omega - x^2 \leq 1 \Rightarrow \sqrt{\omega - x^2} \leq 1 \Rightarrow \omega - x^2 \leq 1 \Rightarrow x^2 \geq \omega - 1 \Rightarrow x \geq \sqrt{\omega - 1}, x \leq -\sqrt{\omega - 1}$

$\Rightarrow D_f = \left[\sqrt{\omega - 1}, \sqrt{\omega} \right] \cup \left[-\sqrt{\omega}, -\sqrt{\omega - 1} \right]$

الف) $y = \log(1 - \log \frac{x}{e})$ $x > 0, 1 - \log \frac{x}{e} > 0 \Rightarrow \log \frac{x}{e} < 1$

$x < e \Rightarrow x < e \Rightarrow D_f = \mathbb{R} = (0, e)$

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$y = \log \left(1 - \log \frac{x}{e} \right)$

$x > 0, 1 - \log \frac{x}{e} > 0 \Rightarrow \log \frac{x}{e} < 1$

$\Rightarrow x \in (0, \frac{1}{e}) \Rightarrow D_f = (0, \frac{1}{e})$

$1 - \log \frac{x}{e} < 0 \Rightarrow \log \frac{x}{e} > 1 \Rightarrow x > e \Rightarrow D_f = (\frac{1}{e}, +\infty)$

مستند!

الف) $y = \sqrt{x^2 - \varepsilon x - 1}$

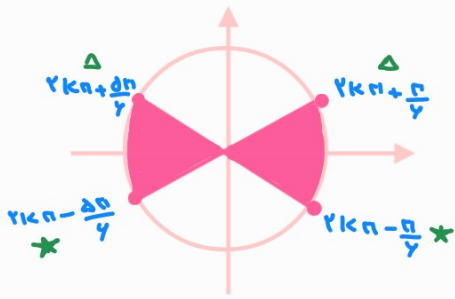
$x^2 - \varepsilon x - 1 \geq 0 \Rightarrow \varepsilon x - x^2 = 1 \Rightarrow x = 1$

$\Rightarrow D_f = \mathbb{R} - (1, e)$

ب) $y = \frac{x + \varepsilon}{x + 1}$ $\Rightarrow \frac{x + \varepsilon}{x + 1} \leq 1 \Rightarrow \frac{-\varepsilon + \varepsilon}{x + 1} = x$

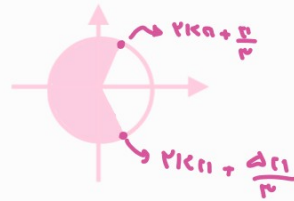
$\Rightarrow D_f = \left\{ x \mid x = \frac{-\varepsilon + \varepsilon}{x + 1}, 1 < x < e \right\}$

$$4- \text{ب) } 1 - r \sin^2 n \geq 0 \rightarrow r \sin^2 n \leq 1 \rightarrow \sin^2 n \leq \frac{1}{r} \rightarrow -\frac{1}{r} \leq \sin n \leq \frac{1}{r}$$



$$\rightarrow Df = [rkn - \frac{n}{y}, rkn + \frac{n}{y}]$$

$$5- \text{ب) } 1 - r \cos n \geq 0 \rightarrow \cos n \leq \frac{1}{r}$$



$$\rightarrow Df = [rkn + \frac{n}{r}, rkn + \frac{\delta n}{r}]$$

$$9- \text{ب) } y = \log_r (1 - \log^{\frac{n}{r}}) \rightarrow \log^{\frac{n}{r}} \rightarrow n.$$

$$\hookrightarrow 1 - \log^{\frac{n}{r}} > 0 \rightarrow \log^{\frac{n}{r}} < 1 \xrightarrow{\text{مناسب (نوع 1)}} n > \frac{1}{r}$$

$$Df = (\frac{1}{r}, +\infty)$$